

REMARKS

Claims 1, 11-12, and 14-16 have been amended, claims 2, 3, 10 and 13 have been canceled, and new claims 25-30 have been added. Claims 17-24 have been canceled for prosecution in a divisional application. Claims 1, 4-9, 11-12, 14-16 and 25-30 are pending. Examination of the application, as amended, is requested.

Claims 25-30 have been added. Due to the canceling of claims 2, 3, 10, 13 and 17-24, no additional claim fee is required.

Restriction Requirement

Applicants confirm election of claims 1-16 of Group I, and have canceled claims 17-24, without prejudice, drawn to a non-elected invention. Applicants reverse the right to prosecute these claims in a divisional application.

New claims 25-30 fall within Group I, and are proper for examination with claims 1-16.

103 Rejections

Claims 1-6 and 9-16 were rejected under 35 U.S.C. 103(a) as being unpatentable over Epstein (WO 01/31393, which is issued as U.S. Patent No. 6,264,336) in view of Hayashi (U.S. Patent No. 6,204,903). Claims 7-8 were rejected as unpatentable over Epstein in view of Hayashi and further in view of Fong (U.S. Patent No. 6,280,063). Applicants disagree with these rejections.

Pending claim 1, as amended, is directed to a reflective, light directing film having an x-axis, a y-axis, and a z-axis, the film comprising a first structured surface and an opposing surface, the structured surface comprising a plurality of elongate prismatic structures thereon. The elongate prismatic structures extend generally along the x-axis, have a spacing along the y-axis between adjacent prismatic structures, and have a height varying along the x-axis in a repeating sine or cosine wave. Pending claims 4-9 and 11 depend directly or indirectly from claim 1 and further define the light directing film.

New claims 25-30, presented in this paper, are also directed to a reflective, light directing film having an x-axis, a y-axis, and a z-axis, the film comprising a first structured surface and an opposing surface, the structured surface comprising a plurality of elongate prismatic structures thereon. The elongate prismatic structures extend generally along the x-axis, have a spacing along the y-axis between adjacent prismatic structures, and have a height varying along the x-axis in a repeating pattern. The prismatic structures also having height varying along the y-axis, the height varying in a curved manner to form curved facet faces.

Pending claim 12, as amended, is directed to an optical device comprising a light reflecting film having a plurality of prismatic structures having a height varying along the length, the variation defined by a sine or a cosine wave. Claims 14 and 15 depend from claim 12 and further define the optical device.

Epstein teaches a light directing film having a first-axis (extending from left to right across the page of FIG. 3), a second axis (extending into the page) and a z-axis (extending from bottom to top along the page of FIG. 3). The light directing film has a structured surface and an opposing surface, the structured surface comprising a plurality of prismatic structures.

The Examiner indicates that the axis extending left to right across the page of FIG. 3 is the x-axis of the figure. This is an improper construction of the disclosure, when using the nomenclature and axis defined in the pending application. For example, FIG. 3 of the pending application illustrates Comparative Example 1 - which is similar to the construction of FIG. 3 of Epstein. On page 16, lines 13-15 of the pending application, it is described that the x-axis of the structure extends into the page, and that the y-axis extends across the structure from left to right in the figure. To be consistent with the nomenclature of the pending application, Applicants contend that the reading of FIG. 3 of Epstein should be that the y-axis extends from left to right across the page. Each prismatic structure 322 is a saw tooth formation 329 having two sides, a tilted surface 330 and a generally vertical surface (unlabeled). ~~These structures 322 are spaced~~ along the y-axis (left to right across the figure). Each of these structures 322 extends into the page, along the x-axis. With this reading and understanding, Epstein is lacking a teaching of

having the height of the structure (in the z-axis) vary as the structure 322 extends along the x-axis.

With the construction indicated by the Examiner (that of the x-axis extending left to right and the y-axis extending into the page), Epstein is lacking elongate prismatic structures extending generally along the x-axis; rather, the structures are blocky, angled construction, which extends into the page indefinitely. With this reading, the construction would be formed by one large structure and would not be a plurality of elongate prismatic structures. Nevertheless, even with the construction indicated by the Examiner, Epstein is lacking a teaching of having a spacing along the y-axis. The Examiner agrees with this deficiency in Epstein.

The Examiner attempts to turn to Hayashi to show the features lacking from Epstein. Hayashi, however, does not teach having prismatic structures extending generally along the x-axis and having a spacing along the y-axis. Hayashi merely shows random, bump-like features; Hayashi does not have elongate prismatic structures as recited by the pending claims. There is no extension along the x-axis for these non-elongate prismatic structures; rather, in the x-axis as designated by the Examiner (from left to right), the bumps are individual structures, not generally extending along the x-axis. Thus even if combined, the teachings of Epstein and Hayashi are deficient in disclosing the structure of pending claim 1. Similarly, the teachings of Epstein and Hayashi are deficient in disclosing the structure of new pending claim 25.

Further, it is not understood how an angled, block structure in the x-direction (as that of FIG. 3 of Epstein) could be combined with a bump in the y-direction (as shown in FIG. 4 of Hayashi). Epstein shows sharp, angled prisms in FIG. 3, whereas Hayashi shows non-geometric bumps. The two structures are not, and cannot be, congruous.

Pending claim 16 is directed to an article made using a programmably controlled cutting tool. The article has an x-axis, a y-axis, and a z-axis, with a plurality of structures extending generally along the x-axis. The structures have a spacing along the y-axis between adjacent prismatic structures, and the structures have a height varying along the x-axis, the height variation being in the z-axis and defined by a sine wave or cosine wave.

The structures of Epstein and of Hayashi have been discussed above, and as explained, the references, and their combination, do not provide an article having structures extending generally along the x-axis, having a spacing therebetween along the y-axis, and a height in the z-axis varying along the x-axis in a repeating pattern. There is no suggestion in Epstein, Hayashi, nor in the combination, of how a structure, as recited in claim 16, could be cut with a programmable cutting tool. There is no disclosure in Epstein as to how the structures are made, other than curing a polymeric material in resin structure made by applying the resin structure between a substrate and a tool having saw tooth formations. Hayashi also discloses making the bumps by making a negative shape on a roll and then filling the negative with a resin material.

Claims 1, 12 and 16 are allowable over Epstein, Hayashi, and their combination, for at least these reasons. Claims 4-6, 9, and 11 further define the structure of claim 1 and claims 14 and 15 further define the structure of claim 12. These claims are allowable at least for the same reasons that claims 1 and 12 are allowable, with additional reasons also present. Withdrawal of this rejection is requested.

Claims 25-30 are also allowable over Epstein, Hayashi, and their combination.

Claims 7 and 8 depend from and further define the structure of claim 1. The addition of Fong does not remedy the deficiencies of Epstein combined with Hayashi, and claim 1 maintains its patentability. Applicants do not agree that the ELDIM EZ discussion and results of Fong would make the results recited in pending claims 7 and 8 obvious. The testing of Fong does not appear to have used 34 degree incident collimated light; rather, Fong used a backlighting source. Additionally, the intent of the structures of the present application is to provide a sharp cut-off of the brightness, which is opposite of the goal of Fong at column 5, line 27. Withdrawal of this rejection is requested.

SUMMARY

Applicant submits that all the claims are in proper form for allowance and respectfully request reconsideration and allowance thereof. A Notice of Allowance is requested.

S/N 09/922,438

Patent - Confirmation No. 7480

Amendment & Response to Office Action dated May 13, 2003
Attorney Docket 56111US002

The Examiner is invited to contact the undersigned representative if it will facilitate prosecution of this application.

Respectfully Submitted,

by Applicants' Representatives

MERCHANT & GOULD P.C.

Date: 15 Sept 2023

By



Mara E. Liepa
Reg. No. 40,066